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10/649,737	08/28/2003	Hisayuki Kato	67161-088	5698

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EXAMINER

PRENTY, MARK V

ART UNIT	PAPER NUMBER
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2822

DATE MAILED: 05/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/649,737

Applicant(s)

KATO, HISAYUKI

Examiner

MARK V. PRENTY

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,4,6,8,9 and 11-25 is/are pending in the application.
- 4a) Of the above claim(s) 17-25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,4,6,8,9,11-13 and 16 is/are rejected.
- 7) ☒ Claim(s) 1,9 and 11-16 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

This Office Action is in response to the RCE filed on April 27, 2005.

Newly submitted claims 17-25 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons:

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1, 4, 6, 8, 9 and 11-16, drawn to a semiconductor device, classified in class 257, subclass 529.
- II. Claims 17-25, drawn to a method of making a semiconductor device, classified in class 438, subclass 381.

The inventions are distinct, each from the other because:

Inventions II and I are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product as claimed can be made by another and materially different process, such as by forming a metal fuse, forming an interconnection line, and connecting the fuse and interconnection line with a metal different than the fuse metal.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 17-25 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Independent claim 1 is objected to because it incorrectly recites, "the connection portion is selectively blown by a laser beam." Specifically, it is claim 1's fuse, not the connection portion, which is selectively blown by a laser beam. See the Abstract, for example. Correction is required.

Claims 9 and 12-15 depend on independent claim 1 and are thus similarly objected to.

Independent claim 16 is objected to because it incorrectly recites, "the connection portion is selectively blown by a laser beam." Specifically, it is claim 16's fuse, not the connection portion, which is selectively blown by a laser beam. See the Abstract, for example. Correction is required.

Claim 11 depends on independent claim 16 and is thus similarly objected to.

Claims 4, 6 and 8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, claims 4, 6 and 8 are indefinite because they depend on canceled claims 3, 5 and 7, respectively.

Claims 1 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by previously cited United States Patent 6,111,301 to Stamper.

With respect to independent claim 1, Stamper discloses a semiconductor device formed on a substrate (see the entire reference, including the Fig. 2 disclosure, for example), comprising: an interconnection line 3/6 formed on substrate 8 and provided to structure a prescribed circuit; and a fuse 2 incorporated into said interconnection line, said fuse and a connection portion of said interconnection line electrically connected to the fuse being formed of different metals (although layers 2 and 6 are formed of the same metal (see column 2, lines 56-57), the interconnection line's layer 3 is formed of a different metal (see column 2, lines 48-56)), wherein the fuse (recall the above objection to claim 1) is selectively blown by a laser beam (see column 1's Background of Invention, for example).

Claim 1 is thus rejected under 35 U.S.C. 102(b) as being anticipated by Stamper.

With respect to dependent claim 12, an oxidation speed of the metal forming Stamper's fuse 2 is faster than an oxidation speed of the (corrosion resistant) metal 3 forming (part of) the connection portion of Stamper's interconnection line.

Claim 12 is thus rejected under 35 U.S.C. 102(b) as being anticipated by Stamper.

Claims 1 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by previously cited United States Patent 6,175,145 to Lee et al. (Lee).

With respect to independent claim 1, Lee discloses (see the entire reference, including the Figs. 5A-5F disclosure, for example) a semiconductor device formed on a substrate 1, comprising: an interconnection line 30 formed on the substrate and provided to structure a prescribed circuit; and a fuse 50 incorporated into said

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interconnection line, said fuse and a connection portion of said interconnection line electrically connected to the fuse being formed of different metals (i.e., copper and aluminum, respectively – see column 3, lines 40-46, and column 4, lines 42-44), wherein the fuse (recall the above objection to claim 1) is selectively blown by a laser beam (see column 4, lines 58-64).

Claim 1 is thus rejected under 35 U.S.C. 102(b) as being anticipated by Lee.

With respect to dependent claim 13, Lee's fuse is formed of a copper metal (see column 3, lines 40-46) and the connection portion of the interconnection line is formed of an aluminum metal (see column 4, lines 42-44).

Claim 13 is thus rejected under 35 U.S.C. 102(b) as being anticipated by Lee.

Claims 16 and 11 are rejected under 35 U.S.C. 102(e) as being anticipated by newly cited United States Patent 6,753,210 to Jeng et al. (Jeng).

With respect to independent claim 16, Jeng discloses a semiconductor device formed on a substrate (see the entire reference, including the Figs. 12-13 disclosure, for example), comprising: an interconnection line 314/316/318 formed on said substrate 310 and provided to structure a prescribed circuit; and a fuse 335 connected to a connection portion of said interconnection line, said fuse having a width gradually reduced from an end toward an intermediate portion of said fuse (see Fig. 13), wherein the fuse (recall the above objection to claim 16) is selectively blown by a laser beam (see column 6, lines 45-49).

Claim 16 is thus rejected under 35 U.S.C. 102(e) as being anticipated by Jeng.

With respect to dependent claim 11, Jeng's fuse has at least three different widths from the end towards the intermediate portion (see Fig. 13).

Claim 11 is thus rejected under 35 U.S.C. 102(e) as being anticipated by Jeng.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over previously cited United States Patent 6,111,301 to Stamper together with newly cited United States Patent 6,753,210 to Jeng et al. (Jeng).

Claim 9 depends on independent claim 1. The explanation of the above rejection of independent claim 1 under 35 U.S.C. 102(b) as being anticipated by Stamper is hereby incorporated by reference into this rejection of dependent claim 9 under 35 U.S.C. 103(a) as being unpatentable over Stamper together with Jeng.

The difference, therefore, between claim 9 and Stamper is claim 9's fuse is formed from at least two portions different in width.

Jeng teaches forming a fuse with at least two portions different in width so that it can be more easily blown by a laser beam (see column 6, lines 41-49).

It would have been obvious to one skilled in this art to form Stamper's fuse with at least two portions different in width so that it can be more easily blown by a laser beam, as taught by Jeng.

Claim 9 is thus rejected under 35 U.S.C. 103(a) as being unpatentable over Stamper together with Jeng.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over previously cited United States Patent 6,175,145 to Lee together with newly cited United States Patent 6,753,210 to Jeng et al. (Jeng).

Claim 9 depends on independent claim 1. The explanation of the above rejection of independent claim 1 under 35 U.S.C. 102(b) as being anticipated by Lee is hereby incorporated by reference into this rejection of dependent claim 9 under 35 U.S.C. 103(a) as being unpatentable over Lee together with Jeng.

The difference, therefore, between claim 9 and Lee is claim 9's fuse is formed from at least two portions different in width.

Jeng teaches forming a fuse with at least two portions different in width so that it can be more easily blown by a laser beam (see column 6, lines 41-49).

It would have been obvious to one skilled in this art to form Lee's fuse with at least two portions different in width so that it can be more easily blown by a laser beam, as taught by Jeng.

Claim 9 is thus rejected under 35 U.S.C. 103(a) as being unpatentable over Lee together with Jeng.

The applicant's arguments are largely moot in view of the amended claims and the resulting new objections and rejections. The examiner respectfully reiterates here that Lee discloses blowing a fuse with a laser beam at column 4, lines 58-64.

Registered practitioners can telephone the examiner at (571) 272-1843. Any voicemail message left for the examiner must include the name and registration number of the registered practitioner calling, and the Application/Control (Serial) Number. Technology Center 2800's general telephone number is (571) 272-2800.

  
Mark V. Prenty  
Primary Examiner